

NAVIN, G.I.; KUDASHOVA, V.P.; NOVIKOV, V.A.

Metals of the platinum group in rock forming and accessory
minerals of ultrabasic rocks. Geokhimiya no.2:159-174 F '65.
(MIRA 18:6)

1. Tsentral'nyy nauchno-issledovatel'skiy goŕno-razvedochnyy
institut tsvetnykh, redkikh i blagorodnykh metallov (TSNIGRI),
Moskva.

RAVIN, I. V.; Kuznetsov, V. V.

Content and characteristics of the distribution of platinum group metals in ultrabasic and alkali rocks. Dokl. AN SSSR 162 no. 4: 912-917. Je 1965. (MIRA 18:5)

1. Tsentral'nyy nauchno-issledovatel'skiy gornorazvedochnyy instytut (svetlyan, redkiy i blagorodnykh metallov. Submitted August 7, 1964.

RAZIN, L.V.; ROZHKOV, I.S.

Geochemistry of gold in the weathering surface and biosphere of
the permafrost region in the Aldan Shield. Trudy IFAN SSSR.Ser.
Geol. no.16:5-22 '63. (MIRA 16:9)

BORISHANSKAYA, S.S.; RAZIN, L.V.; ROZNEKOV, I.S.

Colloform cuproplatinum is a rare variety of cuprian platinum.
Geol. i geofiz. no.7:50-59 '60. (MIRA 13:9)

1. Yakutskiy filial Sibirskogo otdeleniya AN SSSR.
(Platinum)

I 24831-65 EWT(1)/EPA(s)-2/EWT(m)/EPF(n)-2/EWG(m)/EPR/T-2/EWP(t)/EPA(bb)-2/EWP(b)
 ACCESSION NR: AP5007497 Ps-4/Pt-10/Pu-4 IJP(c) S/0286/65/000/004/0107/0107

JD/WW/JG

50
B

AUTHORS: Drobinin, Ya. I.; Razin, M. G.

TITLE: An inductive electromagnetic pump duct for high-melting metals. Class 59,
 No. 168601

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 4, 1965, 107

TOPIC TAGS: electromagnetic pump

ABSTRACT: This Author Certificate presents a duct of an inductive electromagnetic pump for high-melting metals (see Fig. 1 on the Enclosure). The duct is enclosed in a nonmagnetic metal jacket which prevents the forces of internal pressure from acting on the refractory lining of the pump duct. To eliminate the seam in the refractory lining, the duct is made in one piece. The metal duct jacket is water-cooled to prevent breaking of liquid cast iron through the lining. Orig. art. has: 1 figure.

ASSOCIATION: none

SUBMITTED: 11Mar64

ENCL: 01

SUB CODE: EE, IE

NO REF SOV: 000

OTHER: 000

Card 1/2

RAZIN, N.

[Local varieties of highyielding clover of Kalinin Province] Staro-
mestnye vysokourozhainye kleva Kalininskoj oblasti. Kalinin, Obl.
kn-vo. 1953. 58 p. (MLRA 9:11)
(Clover--Varieties)

RAZIN, N. V.

Vodnyi transport v probleme Bol'shogo Altaia. Water transportation in the Greater Altai problem. (Vodnyi transport, 1935, no. 1, p. 40-42; map). DLC: HE561.R8

SO: Soviet Transportation and Communication, A Bibliography, Library of Congress, Reference Department, Washington, 1952, Unclassified.

RAZIN, N. V.

168T14

USSR/Engineering - Power Stations

Jul 50

"Hydroelectric Power Plant With Piled Stone Dam,"
N. V. Razin, Engr

"Gidrotekh Stroi" No 7, pp 9-15

Describes construction of hydroelectric power plant under complex geological conditions in uninhabited region on unnavigable river. Climatic conditions in region are: mean Jan temperature -16.5°C with drop to -45°C during cold spells, annual precipitation 700 mm, and snow cover 155 mm. Station partially completed in 5 years. Location and power not indicated.

168T14

RAZIN, N., V.,

Pa. 173T46

USSR/Engineering - Dams

Sep 50

"Observations on Deformations of a Piled Stone
Dam," N. V. Razin, Engr

"Gidrotekh Stroi" No 9, pp 12-16

Method for registering deformations in piled
stone dams during constr period when stones set
under own wt, and during periods of filling and
use of reservoir (water-pressure deformation).

173T46

RAZIN, N. V.

Tsimlyansk - Concrete Construction

New development in concrete work techniques. Mekh. trud. rab. 6, No. 7, 1952

Monthly List of Russian Accessions, Library of Congress, October 1952. Unclassified.

USSR/Engineering - Construction, Hydro-
electric Power Plant Dec 52

"Tsimlyansk Hydroelectric Power Station," Engrs
M.V. Razin, G.A. Peryshkin, and K.I. Smirnov

"Gidrotekh Stroi" No 12, pp 6-11

Describes construction (materials, dimensions,
volume, components, operating equipment, cranes,
locks) of the following structures of Tsimlyansk
(on the Don River) hydroelectric power plant:
1. Earthen dam; 2. Reinforced concrete spillway;
3. Power plant; 4. Navigation structures, outer
harbor, two navigation locks controlling 26-m
246734

water-level drop; 5. Irrigation flow control
structure. States that for the construction
8.5 million tons of material were delivered via
railroad, 1.4 million tons via water. 37 mil-
lion tons soil, concrete, and other loads trans-
ported via truck. Gives total nos and types con-
struction equipment used, also sources and total
amount (300 million kw) of electric power used
in construction.

246734

RAZIN, Nikolay Vasil'yevich, inzhener, laureat Stalinskoy premii; TISTROVA,
O.N., redaktor; SKVORTSOV, I.M., tekhnicheskiy redaktor

[Tsimlyansk hydroelectric development] TSimlianskii gidrouzel.
Moskva, Gos. energeticheskoe izd-vo, 1954. 131 p. (MLRA 8:3)
(Tsimlyansk hydroelectric power station)
(Tsimlyansk reservoir)

RAZIN, N.V., inzhener.

Mechanization of earthwork at the Kuibyshev hydroelectric
development. Gidr.stroi.23 no.1:5-10 '54. (MLRA 7:2)
(Kuibyshev hydroelectric power station) (Earthwork)

RAZIN, N. V.

AID P - 3370

Subject : USSR/Hydr Eng.
Card 1/1 Pub. 35 - 1/16
Author : Razin, N. V., Stalin Prize Winner
Title : Description of concrete and reinforced concrete work at the Kuybyshev Hydro Power Plant construction
Periodical : Gidr. stroi., 6, 1-6, Je 1955
Abstract : A detailed description of the construction work, volume of earth and concrete involved, mixing and placing of concrete, equipment used and some difficulties encountered during the winter of 1955. Some recommendations for improvement of concrete laying and welding processes are made. Two photos.
Institution : None
Submitted : No date

RAZIN, N.V., laureat Stalinskoy premii; FERINGER, B.P., samestitel' glav-
nogo inzhenera.

Over-all mechanization of concrete mix preparation and placement.
Mekh.trud.rab. 9 no.12:10-14 D '55. (MLRA 9:5)

1. Glavnyy inzhener Kuybyshevgidrostroya (for Razin)
(Concrete construction) (Kuybyshev Hydroelectric Power Station)

RAZIN, N.V.

Mechanization of labor consuming work in building the Kuybyshev
Hydroelectric Power Station. Mekh.trud.rab.13 no.7:3-7 J1 '56.
(MIRA 9:9)

1.Deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury.
(Building machinery)(Kuybyshev Hydroelectric Power Station)

AGAPOV, D.S.; ARTIBILOV, B.M.; VIKTOROV, A.M.; GINTS, A.N.; GOR'KOV, A.V.; GUSYATINSKIY, M.A.; KARPOV, A.S.; KOLOT, I.I.; KOMAREVSKIY, V.T.; KORYAGIN, A.I.; KRIVSKIY, M.N.; KRAYNOV, A.G.; NESTEROVA, I.N.; OBMS, I.S., kandidat tekhnicheskikh nauk; SOSNOVIKOV, K.S.; SUKHOTSKIY, S.F.; CHLENOV, G.O.; YUSOV, S.K.; ZHUK, S.Ya., akademik, glavnyy redaktor; KOSTROV, I.N., redaktor; BARONENKOV, A.V., professor, doktor tekhnicheskikh nauk, redaktor; KIRZHNER, D.M., professor, doktor tekhnicheskikh nauk, redaktor; SHESHKO, Ye.F., professor, doktor tekhnicheskikh nauk, redaktor; AVERIN, N.D., inzhener, redaktor [deceased]; GOR'KOV, A.V., inzhener, redaktor; KOMAREVSKIY, V.T., inzhener, redaktor; ROGOVSKIY, L.V., inzhener, redaktor; SHAPOVALOV, T.I., inzhener, redaktor; RUSSO, G.A., kandidat tekhnicheskikh nauk, redaktor; FILIMONOV, N.A., inzhener, redaktor; VOLKOV, L.N., inzhener, redaktor; GRISHIN, M.M., professor, doktor tekhnicheskikh nauk, redaktor; ZHURIN, V.D., professor, doktor tekhnicheskikh nauk, redaktor; LIKHACHEV, V.P., inzhener, redaktor; MEDVEDEV, V.M., kandidat tekhnicheskikh nauk, redaktor; MIKHAYLOV, A.V., kandidat tekhnicheskikh nauk, redaktor; PETROV, G.D., inzhener, redaktor; RAZIN, N.V., redaktor; SOBOLEV, V.P., inzhener, redaktor; FRINGER, B.P., inzhener, redaktor; TSYPLAKOV, V.D., inzhener, redaktor; ISAYEV, N.V., redaktor; TISTROVA, O.N., redaktor; SKVORTSOV, I.M., tekhnicheskii redaktor

[The Volga-Don Canal; technical report on the construction of the Volga-Don Canal, the TSimlyanskaya hydro development and irrigation works (1949-1952); in five volumes] Volgo-Don; tekhnicheskii otchet
(continued on next card)

AGAPOV, D.S. ---- (continued) Card 2.
o stroitel'stve Volgo-Donskogo sudokhodnogo kanala imeni V.I.Lenina.
TSimlanskogo gidrouzla i orositel'nykh sooruzhenii (1949-1952) v
piati tomakh. Glav.red. S.IA. Zhuk. Moskva, Gos.energ. izd-vo.
Vol.5. [Quarry management] Kar'ernoe khoziaistvo. Red.toma I.N.
Kostrov. 1956. 172 p. (MLRA 10:4)

1. Russia (1923- U.S.S.R.) Ministerstvo elektrostantsii. Byuro
tekhnicheskogo otcheta o stroitel'stve Volgo-Dona. 2. Deystvitel'nyy
cheln Akademii stroitel'stva, i arkhitektury SSSR (for Razin)
(Quarries and quarrying)

14(10)

SOV/112-59-4-6760

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 4, p 51 (USSR)

AUTHOR: Razin, N. V.

TITLE: Present State of and Prospects for the Development of Complex
Mechanization of Concrete Work in Hydraulic Structures

PERIODICAL: V sb.: Kompleksn. mekhaniz. beton. rabot i organiz. zimn.
betonirovaniya. Nr 1, Kuybyshev, 1957, pp 53-83

ABSTRACT: General problems of doing concrete work with examples from large-project experience are considered in detail. It is noted that to cut the overall cost of hydraulic structures, a wider application of manufacturing methods is needed, so that a building site would be turned into an assembling bay. It is desirable that precast reinforced-concrete structures be widely used, and that certain types of work, such as metal-structure and unit erection and building work, be done simultaneously; complex mechanization and automation of such processes as stone quarrying and crushing, concrete mixing and placing, etc., should be more widely used.

A.A.K.

Card 1/1

RAZIN, N.V.

Kuybyshev Hydroelectric Power Station. Energ.stroi. no.5:31-45
'58. (MIRA 12:5)

1. Glavnyy inzhener Kuybyshevgidrostroya, deystvitel'nyy
chlen Akademii stroitel'stva i arkhitektury.
(Volga Hydroelectric Power Station)

SOV/08-58-12-3/21

AUTHOR: Razin, N.V., Engineer and Hero of Socialist Labor

TITLE: The Execution of Work in Constructing the Kuybyshev Hydro-electric Power Plant (Proizvodstvo rabot po sooruzheniyu Kuybyshevskogo gidrouzla)

PERIODICAL: Gidrotekhnicheskoye stroitel'stvo, 1958, Nr 12, pp 13 - 20 (USSR)

ABSTRACT: The Volzhskaya gidroelektrostantsiya (the Volga Hydro-electric Power Plant) has: a water reservoir containing 58 million cu meters; a power capacity of 2.5 million kw. It is producing 11.4 billion kwh per year and is supplying Moscow, the Urals and the Volga area with electric energy. The part of the dam facing the head water has a length of 5,500 m, of which the power plant occupies 700 m, the overflow weir 2,800 m, the junction between the dam and the sluices - 420 m, the sluices - 130 m, and the connecting left-bank dam - 470 m. The following materials were used in the construction of the power plant: earthwork - 185 million cu meters; concrete and reinforced concrete - 7.9 million cu meters; filters, drain-pipes and stone reinforcements - 3.6 million cu meters; metal grooves -

Card 1/2

NOV/98-58-12-3/21
The Execution of Work in Constructing the Kuybyshev Hydro-electric Power Plant

45,000 tons; metal constructions and mechanisms - 135,000 tons; and 20 hydroelectric assemblies - 66,000 tons. The construction of the power plant was started in 1950 at a site eighty km from Kuybyshev (on the left bank of the Volga) and 95 km from Syzran'. A total of 979 million rubles was spent, of which 274 million rubles went for equipment. There are 5 photographs, and 2 tables.

Card 2/2

MALYSHEV, Nikolay Aleksandrovich, inzh.; RAZIN, Nikolay Vasil'yevich;
RUSSO, Georgiy Andreyevich, inzh.; BORUNOV, N.I., tekhn.red.

[The V.I.Lenin Hydroelectric Power Station on the Volga]
Volzhskaya gidroelektrostantsiya imeni V.I.Lenina. Pod obshchey
red. G.A.Russo. Moskva, Gos.energ.izd-vo, 1960. 75 p.
(MIRA 13:7)

(Volga Hydroelectric Power Station)

RAZIN, Nikolay Vasil'yevich; TISTROVA, O.N., red.; BORUNOV, N.I.,
tekhn.red.

[Construction of the Volga Hydroelectric Power Station] Opyt
stroitel'stva Volzhskoi gidroelektrostantsii imeni V.I.Lenina.
Moskva, Gos.energ.izd-vo, 1960. 282 p.

(MIRA 13:11)

(Volga Hydroelectric Power Station)

RAZIN, N.V.

Hydroelectric power construction workers are meeting their assumed obligations. Gidr. stroi. 31 no.7:1-4 J1 '61.
(MIRA 14:7)

1. Glavnyy inzhener Glavgidroenergostroya. Ministerstva stroitel'stva elektrostansiy, deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury SSSR.
(Hydroelectric power stations)

RAZIN, N.V.

Basic trends in improving the concreting operations in hydraulic construction projects. Gidr. stroi. 31 no. 12:51-55 D '60. (MIRA 14:4)

1. Glavnyy inzh. Glavgidroenergostroya Ministerstva stroitel'stva elektrostantsiy, deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury SSSR.
(Concrete construction) (Dams)

RAZIN, N.V., red.; IVANOV, V.G., red.; ROZANOV, K.L., red.;
MAR'YANSKIY, L.P., red.; FRIDKIN, A.M., tekhn. red.

[Concreting techniques in the construction of hydro-
electric power stations, materials] Tekhnologiya betonnykh
rabot na stroitel'stvakh gidroelektrostantsii; materialy.
Moskva, Gosenergoizdat, 1962. 159 p. (MIRA 15:8)

1. Soveshchaniye po obmenu opytom betonnykh rabot na stroitel'-
stvakh gidroelektrostantsii, Bratsk, 1960. 2. Glavnoye upravle-
niye po stroitel'stvu gidroelektrostantsiy i elektrosetey (for
Razin).

(Hydroelectric power stations)
(Concrete construction)

RAZIN, N.V.; STARITSKIY, P.G., inzh.

Coordinating conference on the use of precast reinforced concrete
in hydraulic construction. Gidr. stroi. 32 no.5:61-62 My '62.
(MIRA 15:5)

1. Predsedatel' Koordinatsionnoy komissii po primeneniyu
sbornogo zhelezobetona v gidrotekhnicheskom stroitel'stve
(pri Vsesoyuznom nauchno-issledovatel'skom institute gidrotekhniki
imeni B.Ye. Vedeneyeva); Chlen Akademii stroitel'stva i arkhitektury
SSSR (for Razin). 2. Uchenyy sekretar' Koordinatsionnoy komissii
po primeneniyu sbornogo zhelezobetona v gidrotekhnicheskom stroitel'-
stve (pri Vsesoyuznom nauchno-issledovatel'skom institute gidrotekh-
niki imeni B.Ye. Vedeneyeva) (for Staritskiy).
(Precast concrete construction--Congresses)
(Hydraulic structures)

RACIN, N. V.

"Hydro-electric development in the USSR and its role in meeting rapidly-growing requirements for electric power."

report submitted for Economic Comm for Europe Electric Power Symp, Istanbul,
May 1966.

ALEKSEYEV, G.P.; ANDON'YEV, V.S.; ARNGOL'D, A.V.; BASKIN, S.M.;
 BASHMAKOV, N.A.; BEREZIN, V.D.; BERMAN, V.A.; RIYANOV, T.F.;
 GORBACHEV, V.N.; GRZCHKO, I.A.; GRINBUKH, G.S.; GROMOV, M.F.;
 GUSEV, A.I.; DEMENT'YEV, N.S.; DMITRIYEV, V.P.; DUL'KIN, V.Ya.;
 ZVANSKIY, M.I.; ZENKEVICH, D.K.; IVANOV, B.V.; INYAKIN, A.Ya.;
 ISAYENKO, P.I.; KIPRIYANOV, I.A.; KITASHOV, I.S.; KOZHEVNIKOV,
 N.N.; KORMYAGIN, B.V.; KROKHIN, S.A.; KUDOYAROV, L.I.;
 KUDRYAVTSEV, G.N.; LARIN, S.G.; LEBEDEV, V.P.; LEVCHENKOV,
 P.N.; LEMZIKOV, A.K.; LIPGART, B.K.; LOPAREV, A.T.; MALYGIN,
 G.F.; MILOVIDOVA, S.A.; MIRONOV, P.I.; MIKHAYLOV, B.V., kand.
 tekhn. nauk; MUSTAFIN, Kh.Sh., kand. tekhn. nauk; NAZIMOV, A.D.;
 NEFEDOV, D.Ye.; NIKIFOROV, I.V.; NIKULIN, I.A.; OKOROCHKOV, V.P.;
 PAVLENKO, I.M.; PODROBINNIK, G.M.; POLYAKOV, G.Ya.; PUTILIN, V.S.;
 RUDNIK, A.G.; RUMYANTSEV, Yu.S.; SAZONOV, N.N.; SAZONOV, N.F.;
 SAULIDI, I.P.; SDOBNIKOV, D.V.; SEMENOV, N.A.; SKRIPCHINSKIY, I.I.;
 SOKOLOV, N.F.; STEPANOV, P.P.; TARAKANOV, V.S.; TREGUBOV, A.I.;
 TRIGER, N.L.; TROITSKIY, A.D.; FOKIN, F.F.; TSAREV, B.F.; TSETULIN,
 N.A.; CHUBOV, V.Ye., kand. tekhn. nauk; ENGEL', F.F.; YUROVSKIY,
 Ya.G.; YAKUBOVSKIY, B.Ya., prof.; YASTREBOV, M.P.; KAMZIN, I.V., prof.,
 glav. red.; MALYSHEV, N.A., zam. glav. red.; MEL'NIKOV, A.M., zam.
 glav. red.; RAZIN, N.V., zam. glav. red. i red. toma; VARPAKHOVICH,
 A.F., red.; PETROV, G.D., red.; SARKISOV, M.A., prof., red.;
 SARUKHANOV, G.L., red.; SEVAST'YANOV, V.I., red.; SMIRNOV, K.I.,
 red.; GOTMAN, T.P., red.; BUL'DYAYEV, N.A., tekhn. red.

(Continued on next card)

ALEKSEYEV, G.P.---(continued). Card 2.

[Volga Hydroelectric Power Station; a technical report on the design and construction of the Volga Hydroelectric Power Station (Lenin), 1950-1958] Volzhskaya gidroelektrostantsiya; tekhnicheskii otchet o proektirovanii i stroitel'stve Volzhskoi GES imeni V.I.Lenina, 1950-1958 gg. V dvukh tomakh. Moskva, Gosenergoizdat. Vol.2.[Organization and execution of construction and assembly work] Organizatsiya i proizvodstvo stroitel'no-montazhnykh rabot. Red. toma: N.V.Razin, A.V.Arngol'd, N.L. Triger. 1962. 591 p. (MIRA 16:2)

1. Deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury SSSR (for Razin).

(Volga Hydroelectric Power Station (Lenin)--Design and construction)

POVLOV, I.T.; KOPONCHENYI, P.S.; LAVRENENKO, K.D.; PONDARENKOV, N.P.;
PENGOLINOV, Ya.I.; PRATONOV, N.A.; SHUMILOV, I.S.; KRYUKOV,
...; SHUMILOV, V.I.; ERISTOV, V.S.; ERISTOV, V.S.
RUZIL, N.V.; MIKITSARENKO, L.N.; PRATONOV, V...; SHUMILOV, B.M.
SHUMILOV, B.M.; ROZANOV, K.A.; LIVSHITS, A.Ya.; LONATIN, N.A.;
PSTROV, P.S.

Sergei Borisovich Fogel'son. Gidr. stroi. 31 no. 1:58-60
Ja '61. (1911-1960)
(Fogel'son, Sergei Borisovich, 1911-1960)

RAZIN, O., inzh.

Arrange duckhouses nearer to water. Sil'. bud. 9 no.2:18 F '59.
(MIRA 12:6)

(Ducks)

RAZIN, P.S., dotsent; FILIMONOVA, A.Ya.; VOTINOVA, Ye.P.;
MIKHAYLICHENKO, S.I. (Vladivostok)

Some problems in the pathogenesis of pneumonia in the Maritime
Territory. Klin.med. no.4:43-45 '62. (MIRA 15:5)

1. Iz Vladivostokskogo meditsinskogo instituta (dir. - dotsent
V.M. Zhivoderov).
(MARITIME TERRITORY--PNEUMONIA)

RAZIN, P.S.; FILIMONOVA, A.Ya.

Some data on the observation of convalescent patients after acute
dysentery. Zhur.mikrobiol.epid.i immun. 32 no.2:121-122 P '61.
(MIRA 14:6)

1. Iz Vladivostokskogo meditsinskogo instituta.
(DYSENTERY)

RAZIN, P.S., aspirant

Pathologic characteristics of dysentery in children treated with antibiotics. Trudy Kuib.med.inst. 11:133-147 '60. (MIRA 15:8)

1. Iz kafedry patologicheskoy anatomii (zav. kafedroy prof. N.F. Shlyapnikov) Kuybyshevskogo meditsinskogo instituta.
(DYSENTERY) (ANTIBIOTICS)

RAZIN, P.S.

Changes in the organism of a normal puppy under the influence of
synthomycin. Antibiotiki 5 no.6:64-65 N-D '60. (MIRA 14:3)

1. Kafedra patologicheskoy anatomii (zav. - dotsent P.S.Razin)
Vladivostokskogo meditsinskogo instituta.
(CHLOROMYCETIN)

RAZIN, P.S.

Experimentally produced dysentery in young puppies. Mikrobiol.
zhur. 22 no. 5:60-64 '60. (MIRA 13:10)

1. Kuybyshevskiy meditsinskiy institut.
(DYSENTERY) (DOGS AS LABORATORY ANIMALS)

RAZIN, P.S. (Kuyb shev)

Necrosis of the cortical layer of the kidneys in a patient with
dysentery treated with antibiotics. Arkh. pat. 22 no. 10:80-82 '60.
(MIRA 13:12)

1. Iz kafedry patologicheskoy anatomii (zav. - prof. N.F. Shlyapnikov)
Kiyb shevskogo meditsinskogo instituta.
(DYSENTERY) (KIDNEYS—DISEASES) (ANTIBIOTICS)

RAZIN, P.S.

Infection of young animals by the causative agent of human dysentery.
Zhur.mikrobiol.epid.i immun. 31 no.1:76-79 Ja '60. (MIRA 13:5)

1. Iz kafedry patologicheskoy anatomii Kuybyshevskogo meditsinskogo
instituta.

(DYSENTERY BACILLARY experimental)

RAZIN, P.S., kand.med.nauk (Kuybyshev)

Comments on P.P. Ochkur and S.N. Popov's article "Prolonged course
of Q fever ending in death" (Arkhiv patologii no.9 '58). Arkh.pat.
21 no.4:80-81 '59. (MIRA 12:12)

(Q FEVER)

(OCHKUR, P.P.)

(POPOVA, S.N.)

RAZIN, P. S. Cand Med Sci -- (diss) "Data ^{to} on the pathological anatomy of
dysentery in infants treated with antibiotics, and study of the effect of
antibiotics in experiments with animals." Kuybyshev, 1957. 15 pp (^{from} ~~of~~ the Chair
of Pathological Anatomy of Kuybyshev Med Inst), 200 copies (KL, 3-58, 99)

RAZIN, S.I., inzh.

Increasing the reliability and lifetime of machinery of the
Noril'sk Combine. Stroi. i dor. mash. 8 no.3:33-35 № 163.
(MIRA 18:5)

RAZINA, T., starshiy nauchnyy sotrudnik

Jewelers. Mest.prom. i khud.promys. 1 no.1:7-8 0 '60.

(MIRA 14:3)

1. Nauchno-issledovatel'skiy institut khudozhestvennoy promyshlennosti.
(Art industries) (Art metalwork)

KONFETOV, V.; KHITROV, A.; DOMRACHEV, B.; UGOL'KOV, K.; BOBROV, N.; RAZIN, V.

This leads to accidents, victims, courts. Za rul. 16 no.10:
14-16 0 '58. (MIRA 12:1)

1. Reydovaya brigada zhurnala "Za Rulem" (for all).
 2. Gosudarstvennaya avtomobil'naya inspektsiya i BD (for Konfetov, Khitrov).
 3. Otdel regulirovaniya ulichnogo dvizheniya g. Moskv (for Domrachev, Ugol'kov).
 4. Korrespondenty zhurnala "Za rulem" (for Bobrov, Razin).
- (Drinking and traffic accidents)

RAZIN, V. (Kum-Dag, Turkmeneskaya SSR)

~~Why~~ no record has been broken? Za rul. 16 no. 5:15 My '58.
(MIRA 11:7)

1. Spetsial'nyy korrespondent zhurnala "Za rulem."
(Turkmenistan--Automobile racing)

RAZIN, V.A.

Polarization of cosmic radio wave emission in the 1.45 and 3.3 meter bands [with summary in English]. Astron. zhur. 35 no.2:241-252 ~~Mr-Ap~~
'58. (MIRA 11:6)

1. Radiofizicheskiy institut Gor'kovskogo gosudarstvennogo universi-
teta im. N.I. Lobachevskogo.
(Radio astronomy) (Cosmic rays)

RAZIN, V.

Miners of the skies. Znan.-sila 37 no.8:1-3 Ag '62. (MIRA 16:5)
(Tyrny-Auz--Miners)

RAZIN, V. (Krasnoyarsk).

Will there be an automobile and motorcycle club in Krasnoyarsk?
Za rul. no.10:6 0 '57. (MIRA 10:11)

1. Spetsial'nyy korrespondent zhurnala "Za rulem."
(Krasnoyarsk--Automobiles--Societies, etc.)

USTINOVICH, O.; DINERSHTEYN, A., avtolyubitel'; RAZIN, V.

Potentials of an area. Za rul. 17 no.5:20-21 My '59.
(MIRA 12:8)

1. Reydovaya brigada zhurnala "Za rulem.". 2. Starshiy gosavtoinspektor Gosudarstvennoy avtomobil'noy inspeksii g.Moskvy (for Ustinovich). 3. Korrespondent zhurnala "Za rulem." (for Razin).
(Moscow--Garages)

RAZIN, V.

Remote roadways. Za rul no.11:17-19 N '57.

(MIRA 11:1)

(Krasnoyarsk territory--Automobiles--Touring)

RAZIN, V. (Sverdlovsk)

He turns his back on sportsmen. Za rul. no.12:5 D '57.
(MIRA 11:1)

1. Spetsial'nyy korrespondent zhurnala "Za rulem."
(Sverdlovsk--Automobile drivers)

RAZIN, V.

From start to finish. Za rul. 15 no.7:8-9 J1 '57.
(Automobile racing)

(MLRA 10:9)

BATUKOV, M.; RAZIN, V. (Vologda)

Mistakes of a club. Za rul. 17 no.6:6-7 Je '59. (MIRA 12:10)
(Vologda--Automobiles--Societies, etc.)

Category : USSR/Radiophysics - Application of radiophysical methods

I-12

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 1998

Author : Flechkov, V.M., Razin, V.A.

Title : Results of Measurement of the Intensity of Radio Waves from Discrete Sources at Wavelengths of 3.2 and 9.7 cm.

Orig Pub : Tr. 5-go soveshchaniya po vopr kosmogonii, 1955, M., AN SSSR, 1956, 430-435

Abstract : The intensity of radio waves from sources Cassiopeia-A, Taurus-A, and Cygnus-A was measured at 9.7 cm (1952) and 3.2 cm (1952 and 1955). The 1955 results are : electromagnetic radiation flux at 3.2 cm -- 0.46×10^{-23} w/m² cycle⁻¹ for Cassiopeia-A, 0.6×10^{-23} for Taurus-A, and 0.66×10^{-23} for Cygnus-A. By comparison with data of other observers, the following spectra were found for the radio waves in the interval from 3.2 to 3.7 cm: Cassiopeia-A -- spectrum of the form $\lambda^{0.75}$; Taurus-A -- little variation of intensity with wavelength; Cygnus-A -- spectrum of form $\lambda^{0.8}$ for wavelengths exceeding 9.4 cm, and almost constant intensity in the 3.2--9.4 cm interval. Bibliography, 5 titles.

Card : 1/1

RAZIN, V. A.

Category : USSR/Radiophysics - Application of radiophysical methods

I-12

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 2002

Author : Getmantsev, G.G., Razin, V.A.

Title : Concerning the Polarization of Non-Thermal Cosmic Radio Waves

Orig Pub : Tr. 5-go soveshchaniya po vopr. kosmogonii. 1955, M., AN SSSR, 1956, 496-506, diskus. 506-507

Abstract : Radio waves produced by relativistic electrons are emitted in the direction of the motion of the electrons, and are almost linearly polarized in the plane tangent to the trajectory. Radiation from individual magnetized clouds (measuring approximately 10 parsecs) in the galaxy is linearly polarized, but by virtue of the random distribution of the clouds, the overall radiation may be partly polarized. After determining the distribution function for the degree of polarization ρ , the authors find that $\rho = 0.5\%$ and 1% respectively for an effective dimension of the galaxy $R = 5000$ parsecs and for a 10° and 2° antenna directivity-pattern spread 2θ . This is within the capabilities of present-day radio-astronomical apparatus. The ionized interstellar gas in a magnetic field, being a magnetically-active medium, will rotate the plane of polarization of the linearly-polarized waves that pass through it. The polarization of the radiation from a magnetized cloud will not be affected if the radio waves, radiated by the individual electrons emerging from the

Card : 1/2

Category : USSR/Radiophysics - Application of radiophysical methods

I-12

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 2002

clouds, are polarized in nearby planes. This will occur if the electron concentration is low ($N_e \approx 6 \times 10^{-4} \text{ cm}^{-3}$), i.e., in regions far from the galactic plane. The rotating ability of the medium depends on the frequency, and consequently linearly-polarized radiation in a wide spectral interval becomes unpolarized. The observation of polarization therefore requires apparatus with a narrow pass band (approximately 0.1 Mc). As a result of the rotation of the plane of polarization, one must not expect a linear polarization of the radiation from discrete sources in the meter band, but such polarization should be observed in a region close to the optical one ($\omega \approx 10^{16}$).

In the discussions, V.A. Udal'tsov (FIAN) reported an attempt to measure the polarization of the radiation from the Crab Nebula at wavelengths of 7.6, 5.8, and 3.5 m. No polarization was observed within the limits of measurement accuracy.

Card : 2/2

RAZIN, V.A.

523.16

1740

18 Preliminary Results of the Measurement of the Polarization of Cosmic Radio Emission at a Wavelength of 1.43 m.—V. A. Razin. (Radiotekhnika i Elektronika, June 1956, Vol. 1, No. 6, pp. 846-851.) Weak (~4%) linear polarization of radiation from celestial regions outside the Milky Way was observed. The apparatus is briefly described.

1956

18/10/56

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page
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GETMANTSEV, G.G.; RAZIN, V.A.

Polarization of nonthermal cosmic radiation. Bul.VAGO no.18:3-
8 '56. (MIRA 10:1)

(Cosmic rays) (Polarization (Light))

RAZIN, V. A. Cand Phys-Math Sci -- (diss) "Study of Cosmic
Radio Emission." Gor'kiy, 1957. 11 pp 20 cm. (Gor'kiy State
Univ im N. I. Lobachevskiy), 100 copies (KL, 28-57, 109)

- 8 -

RATIN, V. A.

"Polarization of Cosmic Radioemission and the Study of Magnetic Fields and Gas Concentration in the Galactic Halo,"

paper submitted for the Symposium on Radio Astronomy , 30 Jul - 6 Aug 58, Paris

7

3(1)

AUTHOR: Razin, V.A.

SOV/33-35-2-8/21

TITLE: Polarization of Cosmic Radio Emission at Wave Lengths of 1.45 and 3.3 Meters (Polyarizatsiya kosmicheskogo radio-izlucheniya na volnakh 1.45 i 3.3 m)

PERIODICAL: Astronomicheskiy zhurnal, 1958, Vol 35, Nr 2, pp 241-252 (USSR)

ABSTRACT: In 4 paragraphs the author discusses measurements of linear polarization of cosmic radio emission at wave length of 1.45 and 3.3 meters carried out in the surroundings of Gor'kiy ($\varphi = 56^\circ$) during 1955 and June to October, 1956. The results are obtained by the method of modulation of the width of the transmission band of a narrow-band device, the use of which is suitable for this purpose, and lead to the conclusion that the intensity of the linearly polarized component of radio emission is $2^\circ - 4^\circ$ K in directions with a galactic latitude $> 5^\circ$. The author measured that the degree of polarization of cosmic radio emission at 3.3 m wave lengths is 4-5 times less than that at the wave lengths of 1.45 m. The author thanks

Card 1/2

Polarization of Cosmic Radio Emission at Wave
Lengths of 1.45 and 3.3 Meters

SOV/33-35-2-8/21

A.M.Leonov for the assistance during the erection of the
device and Professor V.L.Ginzburg for the interest in the
present paper.

There are 2 figures and 15 references, 12 of which are Soviet,
2 American, and 1 English.

ASSOCIATION: Radiofizicheskiy institut Gor'kovskogo gosudarstvennogo
universiteta imeni N.I. Lobachevskogo (Radiophysical Institute
of the Gor'kiy State University imeni N.I. Lobachevskiy)

SUBMITTED: September 2, 1957

Card 2/2

ACCESSION NR: AP4007192

S/0141/63/006/005/1052/1053

AUTHORS: Razin, V. A.; Fedorov, V. T.

TITLE: Intensities of some discrete radio sources, the moon and the sun at the 927 megacycle frequency

SOURCE: IVUZ. Radiofizika, v. 6, no. 5, 1963, 1052-1053

TOPIC TAGS: discrete radio source, radio source intensity, solar radio emission, lunar radio emission, radio emission, L band discrete emission, L band lunar emission, L band solar emission, discrete radio emission, Cassiopeia A, Cygnus A, Taurus A, Virgo A, Orion nebula, extragalactic radiation, radio galaxy, radio astronomy, cosmic radiation

ABSTRACT: The enclosure summarizes results of precision measurements made by the 1962 expedition in Kara Dag (Crimea) with a radiotelescope with an 8-meter mirror and 3° power directivity pat-

Card

1/82

ACCESSION NR: AP4007192

tern, calibrated against an artificial source. Some of the measures adopted to improve the accuracy and reliability are described. "We take the opportunity to thank V. P. Botavin, V. D. Krotikov, N. B. Mikhaylov, E. S. Plankin, K. S. Stankevich, V. S. Troitskiy, and N. M. Tseytlin for collaboration." Orig. art. has: 2 tables.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Scientific Research Radiophysics Institute at Gor'kiy University)

SUBMITTED: 29Apr63

DATE ACQ: 20Jan64

ENCL: 01

SUB CODE: GE

NO REF SOV: 002

OTHER: 004

Card 2/3

3(1)

SOV/33-35-6-2/18

AUTHOR: Razin, V.A.

TITLE: On the Galactic Halo

PERIODICAL: Astronomicheskiy zhurnal, 1958, Vol 35, Nr 6,
pp 829 - 837 (USSR)

ABSTRACT: The author determines the concentration of the relativistic electrons moving in the interstellar gas, which are responsible for the non-thermal galactic radio emission, by analysing the spectra and the linear polarization of this emission to

$n \approx (1 \div 2) 10^{-3} \text{ cm}^{-3}$. On the other hand, S.B. Pikel'ner and I.S. Shklovskiy [Ref 9] obtained

$n \approx 10^{-2} \text{ cm}^{-3}$ from the condition of gravitational equilibrium of the galactic halo. From these two data the author draws the conclusion that the main mass of gas in the galactic halo is concentrated in relatively dense clouds. Such clouds have been discovered by G. Münch [Ref 5] far from the galactic plane. The relativistic electrons essentially move in the intermediate space.

Card 1/2

On the Galactic Halo

SOV/33-35-6-2/18

There are 25 references, 13 of which are Soviet, 4 American,
5 English, 2 Australian, 1 German.

ASSOCIATION: Radiofizicheskiy institut Gor'kovskogo/gosudarstvennogo universiteta
N.I. Lobachevskogo (Radiophysical Institute at the Gor'kiy State
University imeni N.I. Lobachevskiy)

SUBMITTED: September 6, 1957

Card 2/2

05477

SOV/141-2-2-2/22

AUTHORS: Tu Leng-yao, Malakhov, A.N., Plechkov, V.M. Razin, V.A.
Rakhlina, V.L. Stankevich, K.S. Strezhnova, K.M.
T'ang Shou-p'o, Troitskiy, V.S. Khrulev, V.V. and
Tseytlin, N.M.

TITLE: Observations of the Annular Solar Eclipse of April 19, 1958
on Wavelengths of 1.63, 3.2 and 10 cm

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika,
1959, Vol 2, Nr 2, pp 154 - 158 (USSR)

ABSTRACT: The report of a joint Soviet-Chinese expedition to
Ling-sui ($\varphi = 18^{\circ}30'32''$, $\lambda = 110^{\circ}01'12''$) on the island
of Hai-nan. The aeriels used parabolic reflectors of
diameters 1 m at the shorter wavelengths and 1.5 m at
the longest. The fluctuations in the threshold of sensi-
tivity were similarly 4° , 5° and 4° . The electrical axes
of the aeriels were parallel to one another. The absolute
accuracy of intensity measurement was $\pm 15\%$ at the longer
wavelengths and $\pm 20\%$ at the shortest. The relative
accuracy, assuming an averaging period of 1 min, was 2-3%.
The results are shown in Figure 1 as measurements of
effective temperature expressed as a percentage of the

Card1/3

05477

SOV/141-2-2-2/22

Observations of the Annular Solar Eclipse of April 19, 1959, on
Wavelengths of 1.63, 3.2 and 10 cm

temperature of the uneclipsed sun. The values of the latter were 9 000 °K (1.63 cm), 21 000 °K (3.2 cm), 100 000 °K (10 cm). The vertical lines on the diagram represent the instants of disc "contact" (4 in number) and the occultation of certain well-known spots Nrs 188 and 186. A number of peculiarities may be noted. Between 2^h 0.3^m and 2^h 15^m and between 3^h 47^m and 3^h 58^m there is an increase in intensity over what might be expected. Figure 2 shows a synoptic chart of the sun. If the Nr 188 group of spots measures 3' x 1' the effective temperature (5.10^4 °K at 1.63 cm) and height 0.04 R at 10 cm) may be estimated. The curves for 3.2 cm and 10 cm in Figure 1 are asymmetrical. This may be explained as due to a wedge-shaped equatorial region which increases in brightness towards the eastern limb of the sun. The longer wavelength curves also show a small "hump" in the trough. This is due to "limb brightening" and it is possible to estimate its amount - e.g. at the

Card2/3

05477

SOV/141-2-2-2/22

Observations of the Annular Solar Eclipse of April 19, 1959, on
Wavelengths of 1.63, 3.2 and 10 cm

shortest wavelength the annulus contributes 4.5% of the intensity of the uneclipsed sun. The effective radius of the "radio-sun" is also estimated as about 4% (depending on wavelength) greater than the optical radius. The deduced values of various constants are in Table 1. The Acad. Sci. of China are thanked as are also Chuang Li-hsin, Hsu Yuan, Li Chi-wen. The Acad. Sci. USSR are thanked, also A.P. Molchanov, B.M. Budkin, P.P. Lugovenko and A.A. Mel'nikov. There are 2 figures, 1 table and 2 Soviet references.

ASSOCIATION: Issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Radiophysics Research Institute of Gor'kiy University)

SUBMITTED: December 9, 1958

Card 5/5

L 20551-66 F50/ENT(1) GN/WS-2
 ACC NR: AP6007626 SOURCE CODE: UR/0141/66/009/001/0007/0010
 AUTHOR: Pupysheva, L. V.; Razin, V. A. 58/13
 ORG: Scientific-Research Institute of Radiophysics, Gor'kiy University (Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete)
 TITLE: Methods for measuring linear polarization of distributed cosmic radio emission
 SOURCE: IVUZ. Radiofizika, v. 9, no. 1, 1966, 7-10^{9/10}
 TOPIC TAGS: cosmic radiation, cosmic radio emission
 ABSTRACT: Sources of errors in measuring linear polarization of cosmic radio emission are: (a) unknown distortion of received radiation by the receiving antenna; (b) effect of antenna polarization on its directional pattern and impedance; (c) partly polarized terrestrial radiation and reflections of cosmic radio emission by the Earth. Published data on cosmic-emission measurements and errors is discussed. This method for eliminating the above errors is suggested: one reading is taken with the antenna beam shielded by a "black" disk; another reading, with the shielding disk removed; by comparing the results of these two measurements, the temperature of the linearly-polarized component of cosmic radio emission obstructed by the disk can be determined. Application of the above method and possible errors due to imperfect shielding are discussed. Orig. art. has: 1 formula. [03]
 SUB CODE: 03, 09 / SUBM DATE: 06Aug65 / ORIG REF: 008 / OTH REF: 010
 ATD PRESS: 4224
 Card 1/1 OK UDC: 523.164.4:621.396.628

RAZIN, V.A., inzh.; SYCHEV, I.A., inzh.

Normal series of measuring membranes, membrane cases, and
blocks. Priborostroenie no.11:24-26 N '65.

(MIRA 18:12)

L 5304-66 EWT(1)/FED GW/WS-2

ACC NR: AP5026699

SOURCE CODE: UR/0141/65/008/005/0857/0861

AUTHOR: Razin, V. A.; Khrulev, V. V.

ORG: Scientific Research Radio Physics Institute, Gorkiy University (Nauchno-
issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete)

TITLE: Optimum wavelength and width of spectral interval in studies of the polarization of distributed cosmic radio-frequency radiation

SOURCE: IVUZ. Radiofizika, v. 8, no. 5, 1965, 857-861

TOPIC TAGS: radio emission, cosmic radiation, antenna radiation pattern, decimeter wave

ABSTRACT: In order to determine the optimum transmission bandwidth of the apparatus used for measuring the polarization of cosmic radio-frequency radiation, the authors have determined the dependence of the position angle and degree of polarization of the radiation on the transmission band. At frequencies above 600 Mc, the optimum width of the spectral interval is large, and there are no restrictions on the transmission bandwidth of the apparatus in connection with the rotation of the

Card 1/2

UDC: 621.396.628 : 523.164 : 523.164.4

L 6304-66

ACC NR: AP5026699

polarization plane of the radiation; at lower frequencies, however, the transmission band of the apparatus must be made relatively narrow. The range of waves on which the polarization can be studied in the long-wave region is limited by depolarization due to the Faraday effect, and in the short-wave region, by the low brightness temperature of the nonthermal radiation (which drops rapidly with rising frequency). It is shown that if the polarization measurements are performed with antenna systems of moderate size, the most suitable wavelengths are those in the decimeter range. Orig. art. has: 1 table and 12 formulas.

SUB CODE: EC,AA/ SUBM DATE: 03May65/ ORIG REF: 004/ OTH REF: 004

Card 2/2

RRL

RAZIN, V.A.; KRIKHNYAKOVA, I.P.

Distribution of an ionized gas near the galactic plane. Izv.
vys. i teeb. zav.; radiofiz. 8 no.4:822-824 '65. (MIRA 18:9)

1. Nauchno-issledovatel'skiy radiofizicheskiy institut pri
Gor'kovskom universitete.

L 6779-65 FED/EWT(1)/EWT(m)/EWG(v)/EEC-4/EPA(w)-2/EEC(t)/EWA(m)-2 Pe-5/
 Pq-4/Pab-24/Pae-2/Pt-10/P1-4/Pb-4 IJP(c)/ASD(f)/AFNL/AEDC(a)/SSD/AFTC(b)/
 ASD(a)-5/AFETR/RAEM(a)/AFMOC/ESD(gs)/ESD(t)/RAEM(t)/ESD(c) GW/MS
 ACCESSION NR: AP4044092 S/0141/64/007/003/0395/0398

126
121

AUTHOR: Razin, V. A.

TITLE: Physical conditions in the surroundings of the solar system,
 determined from measurements of the polarization of cosmic radio
emission 12

SOURCE: IVUZ. Radiofizika, v. 7, no. "3, 1964, 395-398

TOPIC TAGS: space environment, polarization, cosmic radiation,
 ionosphere, solar activity, extraterrestrial topography

ABSTRACT: The author presents data on the medium in the surround-
 ings of the solar system, obtained on the basis of polarization
 measurements of (Faraday rotation of the plane of polarization of
 cosmic radio emission) at a frequency 207 Mcs in October 1957,
 October and December 1961, and March-April 1962. The measurements
 were made with stationary parabolic antennas of 30 meter diameter

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L 6779-65

ACCESSION NR: AP4044092

at the Crimean scientific station of FIAN SSSR. The data on the rotation of the plane of polarization obtained in 1957 indicated that the observed polarization radiation was of extraterrestrial origin, but the data obtained in 1961 and 1962 yielded a much lower value for the intensity of the polarized signal. Since this decrease could not be attributed to the reduction in the concentration of the electrons in the ionosphere, it is concluded that during the periods of the maximal of solar activity there is produced around the solar system an extensive corona of ionized gas, which decreases noticeably during the periods of minimal activity. The corona length is estimated at 2.7×10^{17} cm, which is many times larger than the dimension of the solar system. It is emphasized in conclusion that the results are based on scanty experimental material and are therefore tentative. "I am grateful to V. V. Vitkevich and Yu. L. Kokurin for affording the opportunity to use the antenna systems at the Crimean scientific station of FIAN SSSR and to A. N. Rodionov for help with the measurements in 1961 and 1962. "Orig. art. has:

Card 2/3

L 6779-65

ACCESSION NR: AP4044092

5 formulas and 1 table.

ASSOCIATION: Nauchno issledovatel'skiy radiofizicheskiy institut
pri Gor'kovskom universitete (Scientific Research Radiophysics In-
stitute at the Gor'kiy University)

SUBMITTED: 08Aug63

ENCL: 00

SUB CODE: AA

NR REF SOV: 002

OTHER: 000

Card 3/3

RAZIN, V.A.; FEDOROV, V.T.

Radiation intensities of the moon, sun, and a number of discrete sources at a frequency of 927 Mc. Izv. vys. ucheb. zav.; radiofiz. 6 no.5:1052-1053 '63. (MIRA 16:12)

1. Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete.

GETMANTSEV, G. G.; RAZIN, V. A.

Methods for measuring spatial variations in the cosmic radiation spectrum. Izv. vys. ucheb. zav.; radiofiz. 5 no.5:866-872 '62.
(MIRA 15:10)

1. Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete.

(Cosmic rays—Spectra)

RAZIN, V.A.; TSEYTLIN, N.M.

Problems of measuring radio emissions generated by the atmosphere
and the earth's surface. Izv.vys.ucheb.zav.;radiofiz. 5 no.1:
21-30 '62. (MIRA 15:5)

1. Nauchno-issledovatel'skiy radiofizicheskiy institut pri
Gor'kovskom universitete.

(Radio waves)

(Antennas (Electronics)) (Atmospheric electricity)

L 65217-65 FBD/EWT(1) GW/WS-1

ACCESSION NR: AP5022806

UR/0141/65/008/004/0822/0824
523.85

AUTHOR: Razin, V. A.; Khizhnyakova, I. P.

TITLE: The problem of the distribution of ionized gas near the galactic plane

SOURCE: IVUZ. Radiofizika, v. 8, no. 4, 1965, 822-824

TOPIC TAGS: galactic plane, cosmic radio emission, polarized radiation, electric vector, interstellar space

ABSTRACT: In a recently published paper, F. H. Hoyle and V. R. A. Ellis assumed that a layer of ionized gas exists near the galactic plane, which changes the spectrum of cosmic radio emission in the frequencies of 1 to 10 Mc. The density of ionized gas in that layer amounts to about 0.1 cm^{-3} , and its temperature is about 10^4 K . The half thickness of the layer is 300 psc. V. A. Razin and I. P. Khizhnyakova criticized this assumption as impossible given the assumed state of the layer. Published papers of Western scientists indicate that about 90% of polarized radiation is distributed nonuniformly in a belt which is 50 deg wide and passes through the poles of the Galaxy. A systematic decrease of the intensity of polarization does not occur from the middle to the border, and the electric

Card 1/2

L 65217-65

ACCESSION NR: AP5022806

vector in several places is located along the belt. Two models of the Galaxy are discussed in the original article. The first model assumes a uniform distribution of the ionized gas in the spiral containing the solar system; the second model assumes a concentration of the ionized gas in dense clouds. Theoretical investigations do not confirm the possibility of either the first or the second model. A combination of both models, allowing a cloudy structure of the ionized gas and the Faraday rotation in interstellar space, may prove the polarization of cosmic radiation on frequencies 207, 408, and 610 Mc. Orig. art. has: 4 formulas. [EG]

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Scientific Research Radiophysical Institute at Gorkiy University)

SUBMITTED: 06Apr65

ENCL: 00

SUB CODE: AA

NO REF SOV: 005

OTHER: 009

ATD PRESS: 4089

dm
Card 2/2

RAZIN, V.A.

Criticism of hypotheses on the metagalactic origin of cosmic rays. Astron.zhur. 39 no.1:29-34 Ja-F '62. (MIRA 15:2)

1. Radiofizicheskiy institut Gor'kovskogo gosudarstvennogo universiteta im. N.I.Lobachevskogo.
(Cosmic rays)

35959

S/141/62/005/001/003/024
E140/E435

3,1720

3,1700

AUTHORS:

Razin, V.A., Tseytlin, N.M.

TITLE:

On the measurement of radio radiation of the
atmosphere and the Earth's surface

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy.
Radiofizika. v.5, no.1, 1962, 21-30

TEXT: This paper was presented at the All-Union Scientific
Session on the occasion of Wireless Day (Moscow, 1961).
The authors consider the problems of measurement of the radio
radiation of the atmosphere at 3 cm, using very large antenna
systems. In this case it is found that the effectively
radiating zones are well within the Fresnel zone of the antenna.
Since the authors know of no prior study of the problems arising,
they present a derivation of a general expression for the antenna
temperature and certain consequences therefrom. The calculation
is based on the reciprocity theorem. The author employs only the
spectral characteristics of all quantities involved, and the
derivation is so carried out. The general expression for
antenna temperature T_a follows directly from Poynting's vector

4

Card 1/3

S/141/62/005/001/003/024
E140/E435

On the measurement of radio ...

$$T_a = - \frac{1}{P} \int_{V_T} T \operatorname{div} S dV \quad (3)$$

where S is the value of the Poynting's vector within the body. Since this is very difficult to calculate, further considerations are only qualitative. Only reflector antennas are considered, apparently since it is this type which is used almost exclusively in the field of study covered by the paper. The region of integration is divided into three zones: the principal lobe, the forward halfspace outside of the principal lobe, the back halfspace. This is particularly convenient if it is assumed that the temperature within the principal lobe varies only with the distance, remaining constant over the section. This is well satisfied for atmosphere and Earth measurements. Likewise the zone of Fresnel diffraction is divided into two parts: a zone of geometrical optics, where more than two or three Fresnel zones fit into the antenna aperture, and a zone of rapidly oscillating field, where the aperture covers from one to three or so Fresnel zones.

Card 2/3

On the measurement of radio ...

S/141/62/005/001/003/024
E140/E435

The analysis is carried out with a view to the problems of estimating atmospheric absorption from the radiation of the atmosphere and the antenna noise background due to radiation from the Earth as a function of antenna azimuthal orientation.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete (Radiophysics Scientific Research Institute at Gor'kiy University)

SUBMITTED: May 27, 1961

Card 3/3

Critical appraisal of

8/033/62/039/001/003/015
E032/E514

universe, i.e. it should be universal in character. However, the magnetic field energy cannot then be smaller than the cosmic-ray energy. It is argued that the two energies should be of the same order of magnitude and this yields a figure of roughly $5 \cdot 10^{56}$ for the metagalactic magnetic field. However, if the latter result is correct, then the metagalactic radio emission should be stronger than the observed emission by several orders of magnitude. This difficulty is used as an argument against the metagalactic hypothesis. On the other hand, the theory according to which cosmic rays are of galactic origin not only explains the main experimental data on cosmic rays but can also be used to predict certain facts which are not inconsistent with experiment. The problem of the origin of cosmic-ray particles of energies of $10^{18} - 10^{19}$ eV is said to remain an open one. If they are the nuclei of heavy elements, then they can be explained by acceleration in galactic cosmic-ray sources. If, on the other hand, they are protons, then their origin remains obscure. There are 7 references: 4 Soviet-bloc and 3 non-Soviet-bloc. The English-language references read as follows: Ref. 1: Nuovo Cimento, Suppl. 8, No. 2, 1958; Ref. 2: ibid.

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Critical appraisal of ...

S/055/62/059/001/005/015
E052/E511

in text: Ref.6: L. Bierman, A. Shlifter, Phys.Rev., 82, 865, 1951.

ASSOCIATION: Radiofizicheskiy institut Gor'kovskogo gos.
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SUBMITTED: December 20, 1960

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RAZIN, V.A.

Spectrum of nonthermal cosmic radio emission. Izv. vys. ucheb.
zav.; radiofiz. 3 no.6:921-936 '60. (MIRA 14:4)

1. Nauchno-issledovatel'skiy radiofizicheskiy institut pri
Gor'kovskom universitete.
(Cosmic radiations, Radio frequency)

21162

3.1730 (1126, 1127, 1129)
6.9417

S/141/60/003/006/001/025
E032/E114

AUTHOR: Razin, V.A.

TITLE: On the Spectrum of Non-Thermal Cosmic Radio Emission

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1960. Vol. 3, No. 6, pp. 921-936

TEXT: It is well known that relativistic electrons having an energy spectrum of the form

$$N(E) dE = KE^{-\gamma} dE \quad (1)$$

and moving in a uniform magnetic field in a vacuum, generate radiation whose intensity is given by

$$I_{\nu} \propto H_{\perp}^{(\gamma+1)/2} \nu^{(1-\gamma)/2} \quad (2)$$

where it is assumed that the velocity directions are uniformly distributed over all angles, ν is the frequency of the radiation and $H_{\perp}$ is the component of the magnetic field which is perpendicular to the line of sight. When $H_{\perp}$ varies in a random fashion along the line of sight, then the average value of the intensity of the synchrotron radiation can be determined by

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On the Spectrum of Non-Thermal Cosmic Radio Emission
averaging Eq. (2) over all the possible values of $H_{\perp}$. The
final result is:

$$\bar{I}_{\nu} \propto H_{\perp}^{(\gamma+1)/2} \nu^{(1-\gamma)/2} \quad (2a)$$

where the bar over the symbols denotes averages. Thus, the spectrum of the synchrotron radiation emitted by relativistic electrons having a differential energy spectrum of the form given by Eq. (1) is represented by a power law in which the exponent $\alpha = (\gamma - 1)/2$ depends on γ only. It is stated that all the published papers on this subject confine their attention to this particular approximation. Moreover, the energy spectrum given by Eq. (1) can only be expected to hold in a limited energy interval. It follows that if one is interested in the spectrum of synchrotron radiation in a relatively wide frequency range then the simple intensity dependence given by Eq. (2) cannot be expected to hold either. A further complication is introduced by the fact that under certain conditions relativistic electrons

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cannot be looked upon as radiating in a vacuum (as is usually assumed) and the departure of the refractive index from unity must be taken into account. The present author computes the spectrum of the synchrotron radiation emitted by cosmic electrons in the light of the above considerations. The discussion is limited by the following assumptions: a) steady state conditions obtain in the galaxy, b) the velocities of the cosmic electrons are distributed uniformly over all directions and the concentration of cosmic electrons is independent of the coordinates, c) the spectrum of relativistic electrons generated by the corresponding sources is of the form $K'E^{-\gamma'}$ where $\gamma' \neq 1$, and d) relativistic electrons moving in interstellar space cannot gain energy, and during their presence in the galaxy they lose a considerable part of their initial energy. Under these assumptions the differential energy spectrum of cosmic electrons is governed by the differential equation

$$\frac{\partial}{\partial E} [\psi(E) N(E)] = K' E^{-\gamma'} \quad (7)$$

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where the function $\psi(E)$ represents the average energy lost by the relativistic electrons per second. It is assumed that the energy losses are principally associated with synchrotron emission and ionisation processes (Ginzburg, Ref.1). It is then shown that this function is given by

$$\psi(E) = -a - b\xi^2 \quad (10)$$

where $\xi = E/mc^2$. In this equation a represents the ionisation energy losses and $b\xi^2$ represents losses by synchrotron emission. It then follows that

$$N(\xi) = K_1 / [a/b\xi^2 + 1] \xi^\gamma, \quad (11)$$

where $\gamma = \gamma' + 1$; $K_1 = K' / (\gamma' - 1)(mc^2)^{\gamma' - 2}$ b. The final expression for the intensity is given by

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$$I = \int_0^R \left\{ \frac{3e^3 H_{\perp}(r) K}{\pi (mc^2)^2} \left(\frac{\pi mc^2}{c H_{\perp}(r)} \right)^{(1-\gamma)/2} \nu^{(1-\gamma)/2} \times \right. \quad (12)$$

$$\left. \times \int_0^{\infty} \frac{J(x + \rho/\nu \sqrt{x}) x^{(3-\gamma)/4} dx}{1 + A(\rho) x^{3/2/\nu}} \right\} dr. \quad (12)$$

where ρ is the degree of ionisation of the medium,

$K = K_1 (mc^2)^{\gamma-1} = K' mc^2 C(\gamma-1)b$, $A(\rho)$ is a slowly varying function which is such that $A(1) \sim 200$, $A(0) \sim 100$, and

$$\nu' = \frac{H_{\perp}(r)}{ec N(r)}; \quad \nu'' = \frac{\nu H_{\perp}'^2}{ec \bar{N} H_{\perp}(r)} \quad (13)$$

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$H'_\perp$ is the component of the magnetic field perpendicular to the velocity of the relativistic electron and $H_\perp$ is the component perpendicular to the line of sight. If the medium parameters are independent of coordinates, $\nu' = \nu''$ and the spectrum of the synchrotron radiation is given by

$$\varphi(\nu', \gamma, \rho) = (\nu')^{(1-\gamma)/2} \int_0^\infty \frac{J(x + \rho/\nu' \sqrt{x}) x^{(3\gamma-5)/4} dx}{1 + A(\rho) x^{3/2} / \nu'} \quad (14)$$

In the above expressions $J(x)$ is a function tabulated by Vladimirovskiy (Ref.8). The paper is concluded by a detailed review of published experimental material on cosmic radio emission and the above theory is used in the analysis of the observed spectra. There are 1 figure, 4 tables and 41 references: 19 Soviet, 21 English and 1 German.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete
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SUBMITTED: July 23, 1960

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6.9417

S/141/60/003/004/002/019
E032/E314

AUTHOR: Razin, V.A.

TITLE: On the Theory of Spectra of the Radio Emission of
Discrete Sources Below 30 Mc/s

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,
Radiofizika, 1960, Vol. 3, No. 4, pp. 584 - 594

TEXT: The radio emission of a number of discrete sources has
been more or less fully investigated in the frequency region
30 - 10⁴ Mc/s (Whitfield - Ref. 1). The dependence of the
intensity of radio emission of discrete sources on the
frequency ν is described by a power law of the form

$I_{\nu} \sim \nu^{-\alpha}$, in which the index α differs from source to
source. Published information about the intensity of
discrete sources below 30 Mc/s is incomplete and, to some
extent, conflicting. Nevertheless, existing experimental
data suggest that there is a substantial change in the
character of the spectra of a number of discrete sources
below 30 Mc/s and, in particular, there is some evidence
that the sign of the index α may change in this region.
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On the Theory of Spectra of the Radio Emission of Discrete Sources Below 30 Mc/s

This change in the sign of the spectral index α at low frequencies may be due to absorption of radio waves in inter-stellar media as well as the properties of the source itself. The first section of the present paper is concerned with the effect of absorption in the interstellar medium, and in the source itself, on the character of the observed spectrum. It is shown that the absorption of radio waves in H II regions distorts the spectra of some discrete sources below 30 Mc/s. Moreover, if the mean optical thickness of condensations surrounding the source varies from condensation to condensation, then the screening of the source by these condensations should give rise to a reduction in the index α in a large frequency interval. The second section of the present paper is concerned with the effects due to the mechanism responsible for the emission of the radio waves by the source. The following factors are considered.

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1) Reduction in the intensity of the synchrotron radiation on long wavelengths due to the departure of the refractive index of the medium from unity.

2) Changes due to ¹²ionisation losses experienced by relativistic electrons.

3) Reabsorption of radio emission by relativistic electrons. Acknowledgments are expressed to V.L. Ginzburg for valuable advice.

There are 1 figure and 17 references: 9 English and 8 Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy radiofizicheskiy institut pri Gor'kovskom universitete
(Scientific Research Radiophysical Institute of Gor'kiy University)

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